

August 13, 2003

The Honorable Nils J. Diaz
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: HIGH-LEVEL WASTE: RISK-SIGNIFICANCE RANKING OF
AGREEMENTS AND THE USE OF RISK INFORMATION TO
RESOLVE ISSUES

Dear Chairman Diaz:

During the 143rd meeting of the Advisory Committee on Nuclear Waste on June 24–25, 2003, the Committee was briefed by the NRC staff on the status of the subject activities. The Committee has commented in previous reports to the Commission on the value of these efforts and has recommended they be supported (Reference 1). We have also suggested that the NRC staff be cautioned against compromising the principles and practices of risk assessment in developing risk insights and in implementing the risk-informed issue resolution process (Reference 2). In that regard we offer the following comments based on the briefings.

Evidence-Based Risk Insights

The Committee believes that a direct linkage of the risk ranking results with the performance assessments would enhance the risk insights that have been drafted. The current approach discusses risk insights by ranking them into three categories: high, medium, and low risk. The supporting evidence presented was a discussion of the technical aspects of the ranked issues, but did not connect the technical information with the quantitative risk assessment results (i.e., the performance assessment). An example of a high-risk item presented with no supporting risk assessment was “rock fall creating large static loads on waste packages.” The Committee is asking that risk assessments which support the risk rankings be provided.

The staff should base their risk insights on “results and findings that come from risk assessments”—such as the analyses employed in the performance assessments (Reference 3). Whenever possible, departure from the analytical processes on which the risk assessment discipline is founded should be avoided. Because a risk assessment is not a decision analysis, factors other than risk should be a part of regulatory decisionmaking. Nevertheless, we see no reason to compromise the traditional quantitative approach to risk assessment. We recommend that the documentation of such linkage be provided to better present the supporting evidence for ranking contributors to repository performance. We understand that the staff plans to include such documentation as part of their risk insights report due for completion in October 2003.

Completeness of Analysis

The question of when further analysis on issues of risk is not warranted was raised during the briefing. In the opinion of the Committee, termination of analysis of safety issues must be based on the supporting evidence. Thus, any strategy to terminate analysis should consider new evidence that could increase the risk. The availability of a risk-informed performance assessment offers an appropriate metric for terminating analysis of low-risk issues. In particular, one approach would be to terminate analyses of issues that do not significantly contribute to the total risk of the facility. In addition, the safety and regulatory requirements must be met.

The Committee believes that if the high-level waste risk insights initiative is implemented as recommended, the evidence supporting conclusions regarding safety issues will be documented and transparent.

Risk Ranking Terminology

In keeping with the Commission's urging of the use of "plain English" in technical documentation of regulatory activities, the Committee has some concerns with the terminology in the technical exchanges between the Department of Energy (DOE) and the NRC staff. The Committee believes that the usage of some terms by DOE is not consistent with NRC and may confuse their meaning. In particular, the use of such terms as risk-informed, risk-based, technical basis, risk information, and technical information is not consistent. Such inconsistencies between DOE and NRC could confuse the public. The Commission's white paper can contribute to greater consistency and clarity in the communications between the two agencies.

In summary, the Committee is extremely pleased with the progress the NRC staff is making in implementing risk-informed regulatory practices. We have especially been impressed with the performance assessment team that has been assembled and the work they are doing. We look forward to receiving future briefings on the implementation of the risk insights initiative and the risk-informed issue resolution process.

Sincerely,

/RA/

B. John Garrick
Chairman

References:

1. ACNW Letter dated June 12, 2003, to Nils J. Diaz, Chairman, U.S. Nuclear Regulatory Commission, from George M. Hornberger, Chairman, ACNW, Subject: Total System Performance Assessment Working Group Session.
2. ACNW Letter dated August 7, 2002, to Richard A. Meserve, Chairman, U.S. Nuclear Regulatory Commission, from George Hornberger, Chairman, ACNW, Subject: High-Level Waste Performance Assessment Sensitivity Studies.
3. SECY-98-144, White Paper on Risk-Informed and Performance-Based Regulation.